

That which is claimed is:

1. A watercraft ramp comprising a frame and a plurality of hull-support assemblies,

(i) said frame having at least one pair of elongated channel rails held in laterally spaced condition, each said rail having a longitudinally aligned internal recess and a longitudinally aligned elongated slot for access into said internal recess, said slot being narrower in transverse width than the transverse width of said recess, and

(ii) said hull-support assemblies being mounted in spaced relationship to each other on said channel rails, each said hull-support assembly comprising a mounting bracket, a fastener for fixing said bracket on a said rail, and at least one hull roller mounted on said bracket for supporting a watercraft, each said fastener including a locking part that is movable through a said rail slot into the internal recess of the rail for locking engagement of the bracket to the rail at any desired location along said rail slot, and said bracket having a stabilizer part cooperative with said slot to maintain alignment of the bracket on the rail.

2. The ramp of claim 1 wherein said locking part of said fastener comprises a transverse plate longer than it is wide, and wherein the width of said transverse plate is

less than the width of said rail slot so that said transverse plate can pass through the elongated rail slot when the plate is oriented with its length parallel to the rail slot, the length of said transverse plate being greater than the width of said rail slot but less than the width of said rail internal recess, said length at its ends being equipped with stop members for abutment against an inside surface of said rail when said transverse plate is transversely oriented in said rail internal recess.

3. The ramp of claim 1 wherein said stabilizer part comprises a flange portion capable of extending into said rail slot.

4. The ramp of claim 1 wherein each said channel rail has a top structure including longitudinal border flanges that project inwardly from each side of the channel rail and wherein said border flanges have downwardly directed longitudinal lip flanges at the inward edge thereof, said longitudinal slot of said rail being defined by said lip flanges, and wherein said internal recess has internal lock recesses bordered by said inwardly projecting border flanges and by said lip flanges, and wherein said locking part of said fastener comprises a transverse metal plate having a length longer than its width and equipped with locking protrusions for entry into said internal lock recesses of said channel rails to effect said locking engagement of said bracket to the rail.

5. The ramp of claim 1 wherein said channel rails of said pair are held in spaced apart condition by cross brace beams and wherein said cross brace beams are telescope-able but fixed against telescoping movement on said ramp.

6. The ramp of claim 1 wherein one end of the elongated channel rails is called an entry end and the other end is called a stop end, said ramp having a winch assembly mounted proximate to said stop end on a telescope-able winch mount beam braced against tilt toward the entry end by a metal strap anchored on said frame.

7. The ramp of claim 1 wherein one end of the elongated rails is the entry end and a keel roller is mounted on said frame at said entry end.

8. The ramp of claim 1 wherein each said rail of said pair comprises two rail sections with an end of one said section abutting an end of the other said section and a connecting bracket extending over said abutting ends of said sections and fixed to each said rail.

9. The ramp of claim 1 wherein at least one of said hull roller assemblies is equipped with two hull rollers on a tiltable axle arrangement mounted on said bracket.

10. The ramp of claim 1 with features for receiving a pontoon watercraft thereupon, said features including a second pair of elongated channel rails in spaced apart relationship on said frame and in parallel spaced relationship to the pair of rails recited in claim 1, said

channel rails of said second pair having all of the features and relationships specified for the channel rails and hull-support assemblies as specified in claim 1.

11. A watercraft ramp comprising

(i) a ladder-style frame having at least one pair of elongated channel rails and a plurality of cross-brace beams for holding the lateral channel rails in laterally spaced condition, said rails terminating at one end as an entry end and terminating at the other end as a stop end, each said elongated channel rail having a shape defined by two longitudinally extending parallel side walls with a longitudinal bottom edge and a longitudinal top edge for each said side wall, a floor wall joining said bottom edge of said side walls, a top structure formed by longitudinal border flanges projecting inwardly from the top edge of said side walls and having at their inward edges downwardly directed lip flanges that define a longitudinal slot in the top structure of said channel rails as well as define internal lock recesses bordered by said lip flanges and said inwardly projecting border flanges and said upper part of said side walls, and

(ii) at least six hull-support roller assemblies mounted on said channel rails in laterally paired relationship across from each other and in longitudinally spaced relationship along said rails such

that at least three said hull-support roller assemblies are on each said channel rail, each said hull-support roller assembly having a mounting bracket and a fastener for holding said bracket at any desired location along the length of a said channel rail,

(A) said mounting bracket having an elongated floor panel with a fastener hole extending vertically therethrough as well as upright flanges for supporting at least one hull roller and downward stabilizer flanges received within the slot of the said channel rail,

(B) said fastener having two major parts threadedly fastenable together along an axis common to each part, one said part being a head end with a threaded shaft projecting axially inward therefrom and capable of extending through said fastener hole of said mounting bracket, the other said part being a nut end with an axially inward side for threaded fastening axially on said threaded shaft, either said head end or said nut end having a transverse metal plate extending radially outward therefrom and integrally united thereto so as to be oriented transverse to said axis of fastening, said transverse metal plate having a length between opposite terminal ends of it and having a width across said length, with the length longer than the

width, and at least one locking protrusion projecting inward from said plate at a plate location proximate to a terminal end of said plate for locking into a said channel rail internal lock recess during a step of fastening of the two parts of said fastener together, said width of said transverse metal plate being no greater than the width of said slot of said channel rail and said length of said transverse metal plate being greater than the width of said slot and less than the internal width between the side walls of said channel rail but sufficiently near the internal width of said side walls to be stopped from rotating inside said channel rail by abutment against the side wall so as to place said transverse plate at an orientation for entry of said locking protrusion into a said internal lock recess of said channel rail as said parts of said fastener are threadedly fastened axially together with said shaft of said fastener extending through said fastener hole of said mounting bracket so as to fasten said bracket on a said channel rail with the stabilizer flanges of the bracket extending into the longitudinal slot of said channel rail.

12. The ramp of claim 11 having a locking protrusion at each end of said transverse plate so as to

provide a locking protrusion for each internal lock recess of said channel rail.

13. The bracket of claim 11 wherein a plurality of said brackets have their upright flanges oriented parallel to the length of said bracket floor panel and a single hull roller is mounted thereon.

14. The ramp of claim 11 wherein a plurality of said hull-support roller assemblies have their upright flanges oriented transverse to the length of said bracket floor panel and two hull rollers on a tiltable axle arrangement are mounted thereon.

15. Two or more cartons of unassembled components capable of convenient assembly to form a watercraft ramp, said unassembled components comprising:

(i) components for forming a frame comprising

A. a pair of elongated channel rails, each said elongated channel rail having a shape defined by two longitudinally extending parallel side walls with a longitudinal bottom edge and a longitudinal top edge for each said side wall, a floor wall joining said bottom edge of said side walls, a top structure formed by longitudinal border flanges projecting inwardly from the top edge of said side walls and having at their inward edges downwardly directed lip flanges that define a longitudinal slot in the top structure as well as

define internal lock recesses bordered by said lip flanges and said inwardly projecting border flanges and said upper part of said side walls, said rails having a length of at least about 5 feet and not greater than 9 feet, and

B. a plurality of cross brace beams adapted for removable fastening to said rails to hold said rails in laterally spaced relationship, and

(ii) components for forming at least six hull-support roller assemblies capable of being mounted on said channel rails of said frame at any desired location along the length of said channel rails, comprising for each said hull-support assembly

(A) a mounting bracket having an elongated floor panel with a fastener hole extending vertically therethrough as well as upright flanges for supporting at least one hull roller and at least one downward stabilizer flange adapted to be received within the slot of a said channel rail,

(B) a fastener having two major parts threadedly fastenable together along an axis common to each part, one said part being a head end with a threaded shaft projecting axially inward therefrom and capable of extending through said fastener hole



of said mounting bracket, the other said part being a nut end with an axially inward side for threaded fastening axially on said threaded shaft, either said head end or said nut end having a transverse metal plate extending radially outward therefrom and integrally united thereto so as to be oriented perpendicular to said axis of fastening, said transverse metal plate having a length between opposite terminal ends of it and having a width across said length, with the length longer than the width, and at least one locking protrusion projecting inward from said plate at a plate location proximate to a terminal end of said plate for locking into a said internal lock recess during a step of fastening of the two parts of said fastener together, said width of said transverse metal plate being no greater than the width of said slot of said channel rail and said length of said transverse metal plate being greater than the width of said slot and less than the internal width between the side walls of said channel rail but sufficiently near the internal width of said side walls to be stopped from rotating inside said channel rail by abutment against the side wall so as to place said transverse plate at an orientation for entry of said locking protrusion into a said

internal lock recess of said channel rail when said parts of said fastener are threadedly fastened axially together with said shaft of said fastener extending through said fastener hole of said mounting bracket so as to fasten said bracket on a said channel rail with the stabilizer flanges of the bracket extending into the longitudinal slot of said channel rail.

16. The cartons of claim 15, each having a weight no greater than 150 pounds and having a length dimension no greater than 108 inches and a length plus girth dimension not over 130 inches.

17. Two or more cartons of unassembled components capable of convenient assembly to form a watercraft ramp, said unassembled components comprising:

(i) components for forming a frame comprising

A. four elongated channel rail sections for forming a pair of elongated channel rails, each said elongated channel rail being a composite formable by connecting two of said rail sections together in end-to-end relationship, each said elongated channel rail section having a shape defined by two longitudinally extending parallel side walls with a longitudinal bottom edge and a longitudinal top edge for each said side wall, a floor wall joining said bottom edge of said side

walls, a top structure formed by longitudinal border flanges projecting inwardly from the top edge of said side walls and having at their inward edges downwardly directed lip flanges that define a longitudinal slot in the top structure as well as define internal lock recesses bordered by said lip flanges and said inwardly projecting border flanges and said upper part of said side walls, said rail sections having a length of at least about 5 feet and less than 9 feet, and

B. at least six cross brace beams adapted for removable fastening to said rail sections to hold said rail sections in laterally spaced relationship, each said cross brace beam being comprised of a female part and a male part adjustably mateable to vary the length of the cross brace beam, and

(ii) components for forming at least six hull-support roller assemblies capable of being mounted on said channel rail sections of said frame at any desired location along the length of said channel rail sections, comprising for each said hull-support assembly

(A) a mounting bracket having an elongated floor panel with a fastener hole extending vertically therethrough as well as upright flanges for supporting at least one hull

roller and at least one downward stabilizer flange adapted to be received within the slot of a said channel rail section,

(B) a fastener having two major parts threadedly fastenable together along an axis common to each part, one said part being a head end with a threaded shaft projecting axially inward therefrom and capable of extending through said fastener hole of said mounting bracket, the other said part being a nut end with an axially inward side for threaded fastening axially on said threaded shaft, either said head end or said nut end having a transverse metal plate extending radially outward therefrom and integrally united thereto so as to be oriented perpendicular to said axis of fastening, said transverse metal plate having a length between opposite terminal ends of it and having a width across said length, with the length longer than the width, and at least one locking protrusion projecting inward from said plate at a plate location proximate to a terminal end of said plate for locking into a said internal lock recess during a step of fastening of the two parts of said fastener together, said width of said transverse metal plate being no greater than the width of said slot of said channel rail section and said length

of said transverse metal plate being greater than the width of said slot and less than the internal width between the side walls of said channel rail section but sufficiently near the internal width of said side walls to be stopped from rotating inside said channel rail section by abutment against the side wall so as to place said transverse plate at an orientation for entry of said locking protrusion into a said internal lock recess of said channel rail section when said parts of said fastener are threadedly fastened axially together with said shaft of said fastener extending through said fastener hole of said mounting bracket so as to fasten said bracket on a said channel rail section with the stabilizer flanges of the bracket extending into the longitudinal slot of said channel rail section .

18. The carton of claim 17 wherein said four rail sections and said male and female parts of said six cross brace beams are packaged in nested and cradled relationship in one carton, said relationship being such that a first assembly of two said rail sections in side-by-side relationship with their top structures exposed in one direction and a second assembly of the remaining two said rail sections in side-by-side relationship with their stop structures exposed in the opposite direction have the side

walls of the rail sections of each said assembly interleaved so that said side walls of one said assembly extend into the recesses of the rail sections of the other said assembly and vice versa, and wherein said interleaved rail sections are cradled on opposite sides within the male part of a series of said nested male and female parts of said cross brace beams.